Introduction

Historical Images of Voyager's Grand Tour

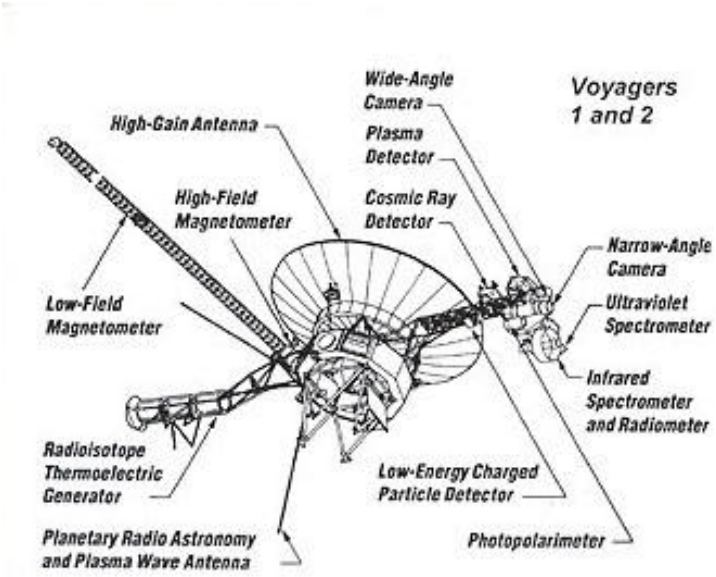
Voyager has become the icon of interplanetary missions. It saw more new worlds for the first time than any mission ever has…we found that nature was incredibly inventive in the way it used the basic laws of nature to create these diverse, distinct worlds...Time after time, no matter what we thought we knew, nature tricked us.

-Dr. Edward Stone, Voyager Project Scientist

Voyager Mission Highlights

In 1977, two unmanned spacecraft, designed and built by the Jet Propulsion Laboratory, were launched on reconnaissance missions to the outer planets. Separate Titan/Centaur rockets launched Voyagers 1 and 2 in September and August 1977 toward Jupiter. In 1972-74, the flights of Pioneer 10 and 11 proved spacecraft could fly through the asteroid belt beyond Mars and survive Jupiter's intense magnetosphere. Pioneer 11 also tested the gravity-assist technique that the Voyager spacecraft used to successfully journey beyond Jupiter.

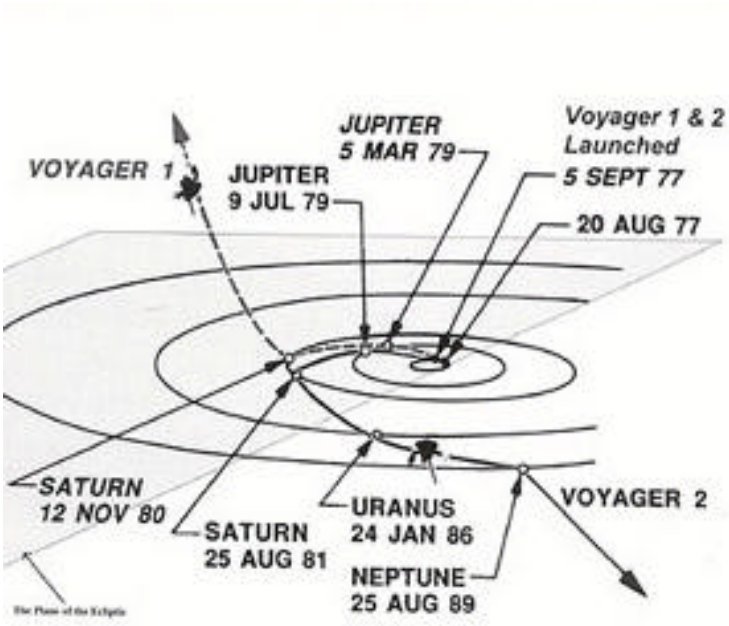
Each Voyager spacecraft carries a message in the form of a 12-inch gold-plated phonograph record. The record, together with a cartridge and needle, is fastened to the side of the spacecraft in a gold-anodized aluminum case that also illustrates how the record is to be played. In the photograph below, taken shortly before launch in 1977, Voyager Project Manager, John Casani, displays the "Sounds of Earth" recording. The records contain greetings in 55 languages, samples of music from different cultures and eras, natural sounds of surf, wind, thunder, birds, whales and other animals, and a message from President Jimmy Carter.



In September 1977, Voyager 1's camera looked back toward the home planet for a first-ever glimpse of the Earth and its Moon in a single frame.

In 1979, Voyagers 1 and 2 sent back spectacular images of the Jovian system and made startling discoveries. Giant volcanoes spew molten sulfur hundreds of kilometers above the surface of Io, one of Jupiter's largest moons, while Europa, Ganymede, and Callisto each have diverse surfaces. Three tiny moons were found near a thick ring of dust particles encircling the planet, and cloud-top lightning bolts and polar auroras light up the Jovian night skies.

The Voyagers traveled on to Saturn encounters in 1980 and 1981 respectively. The rings were more complex than scientists could have imagined. Although Saturn's colors are more muted than Jupiter's, storms are still visible in the cloud tops. A thick atmosphere of nitrogen and methane surrounds Titan, Saturn's largest moon, and the photochemical hazes hide its surface. After its close swing past Titan, Saturn's gravity forced Voyager 1 up and out of the ecliptic plane, and the spacecraft is now on its way out of the solar system.



Mission planners took advantage of the opportunity to send Voyager 2 on to Uranus. Arriving at Uranus in 1986, Voyager 2 found a cold planet with a remarkably featureless atmosphere. The spacecraft discovered ten small moons and two new rings at Uranus. Miranda, one of the five larger moons, has one of the most complex surfaces yet seen in the solar system. Voyager 2's final planetary encounter took place on August 25, 1989, when the spacecraft sailed within 3000 miles of the cloud tops of Neptune's north pole. Five hours later, Voyager 2 swept past Triton, a cold, bright moon where volcanoes may spew ice particles into the thin nitrogen atmosphere. The spacecraft discovered six new moons and a number of rings at Neptune. Now Voyager 2 is also heading out of the solar system, diving below the ecliptic plane.

Data from both Voyagers could be received well into the next century as they search through interstellar space. Please see http://voyager.jpl.nasa.gov to check the current location and status of the Voyager spacecraft.

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Everyone knows that the launch window in 1977-79 happens only once every 176 years, so that a single spacecraft can fly by all four planets. If this window had occurred in 1965-66-67, we wouldn't have had the technology to fly such a mission. If it had happened in the 80's, we couldn't have launched the mission [when Titan/Centar rocket was discontinued]. We were indeed fortunate that the launch window was open at just the right time… We have enough electrical power to keep it going for roughly another 20 years. There's still a lot left to discover. The journey of a lifetime is not over yet.

-Dr. Edward Stone, Voyager Project Scientist

About this Exhibit

This online resource provides a gallery of planetary images and links to archival collections and other websites about the Voyager missions. It was developed by staff at the JPL Library and Archives and is based on a historical exhibit previously displayed at JPL for a public open house. Special thanks to Archives staff who created the original content for this exhibit.

In honor of Voyager's 25th anniversary the companion to this online exhibit is currently on display in the JPL Library, Building 111. If you visit the Library, please take a look at it, and write comments in the guest book.

These images are part of
located at http://beacon.jpl.nasa.gov